

ATTACHMENT C

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A confocal microscope or endoscope, having:

a source of coherent light for illumination of a sample;

a light focuser for receiving and focusing said coherent light to an illumination volume that in use intersects said sample;

a single optical fibre for transmitting said coherent light from said source to said light focuser;

a beam-splitter for receiving return light returned from said sample in response to said illumination and for ~~diverging~~separating from said return light a fluorescent component of said return light;

at least one optical element for spectrally dispersing said fluorescent component;
and

an imaging optical fibre bundle ~~comprising a plurality of individual fibres, said fibre bundle~~ having an entry end located to receive said ~~diverged~~dispersed fluorescent component of said return light so that said ~~diverged~~ fluorescent component is transmitted to an exit end of said fibre bundle;

wherein said dispersed fluorescent component is received and transmitted by a plurality of said individual fibres of said fibre bundle and said fibre bundle preserves, between said entry end and said exit end of said fibre bundle, the relative spatial coordinates of the cores of said individual fibres.

2. (currently amended - withdrawn) A confocal microscope or endoscope as claimed in claim 1, ~~further comprising wherein said optical fibre comprises a single mode fibre for transmitting said coherent light from said source and having~~ has an exit end mounted in a fixed spatial relationship to said entry end of said fibre bundle.

3. (previously presented - withdrawn) A confocal microscope or endoscope as claimed in claim 1, wherein said relative spatial coordinates are transformed between said ends such that an image can still be formed.
4. (original - withdrawn) A confocal microscope or endoscope as claimed in claim 3, wherein said coordinates are reversed so that a mirror image is formed.
5. (previously presented) A confocal microscope or endoscope as claimed in claim 1, wherein said microscope or endoscope is embodied as an ophthalmoscope.
6. (previously presented - withdrawn) A confocal microscope or endoscope as claimed in claim 1, wherein said beam-splitter comprises a simple or compound prism.
7. (previously presented - withdrawn) A confocal microscope or endoscope as claimed in claim 1, wherein said beam-splitter comprises a transmission or reflection diffraction grating.
8. (previously presented - withdrawn) A confocal microscope or endoscope as claimed in claim 1, wherein said microscope or endoscope includes a further beam-splitter, optically reversed relative to said beam-splitter and located optically after said fibre bundle, to improve focal plane isolation.
9. (previously presented) A confocal microscope or endoscope as claimed in claim 1, wherein said microscope or endoscope includes a spatial filter optically after said fibre bundle.
10. (original) A confocal microscope or endoscope as claimed in claim 9, wherein said spatial filter comprises a variable aperture.

11. (previously presented - withdrawn) A confocal microscope or endoscope as claimed in claim 1, wherein said microscope or endoscope includes a scanner for providing scanning of said illumination volume relative to said sample.

12. (original - withdrawn) A confocal microscope or endoscope as claimed in claim 11, wherein said scanner comprises a mirror or a tuning fork.

13. (original - withdrawn) A confocal microscope or endoscope as claimed in claim 11, wherein said scanner comprises a pivotably mounted member provided with collimating optics for collimating said coherent light.

14. (original - withdrawn) A confocal microscope or endoscope as claimed in claim 13, wherein said collimating optics comprise a simple or compound lens.

15. (original - withdrawn) A confocal microscope or endoscope as claimed in claim 13, wherein said pivotably mounted member is mounted by means of, and is pivotable about, an axle.

16. (previously presented - withdrawn) A confocal microscope or endoscope as claimed in claim 13, wherein said pivotably mounted member is mounted by means of a pair of flexible supports that differ so that said pivotably mounted member can be pivoted by being oscillated.

17. (original - withdrawn) A confocal microscope or endoscope as claimed in claim 16, wherein said flexible supports differ in length.

18. (previously presented - withdrawn) A confocal microscope or endoscope as claimed in claim 1, including one or more shallow angle prisms located in an image plane to separate out different spectral bands, and a plurality of fibre bundles, each for receiving a respective spectral band, for producing multiple color images.

19. (original - withdrawn) A confocal microscope or endoscope as claimed in claim 18, including a plurality of separate photo-detectors, each for detecting a respective spectral band transmitted by a respective one of said fibre bundles.

20. (new) A confocal microscope or endoscope as claimed in claim 1, wherein said optical element for spectrally dispersing said fluorescent component comprises said beam-splitter.

21. (new) A method of performing confocal microscopy or endoscopy, comprising:

transmitting coherent light from a light source to a light focuser with a single optical fibre;

focusing said coherent light with said light focuser to an illumination volume that in use intersects a sample;

receiving return light returned from said sample in response to said illumination at a beam-splitter;

separating a fluorescent component of said return light from said return light with said beam-splitter;

dispersing said fluorescent component such that said fluorescent component is received by a plurality of individual fibers of an imaging optical fibre bundle at an entry end of said fibre bundle;

transmitting said fluorescent component with said fibre bundle to an exit end of said fibre bundle; and

preserving the relative spatial coordinates of the cores of said individual fibres between said entry end and said exit end of said fibre bundle.